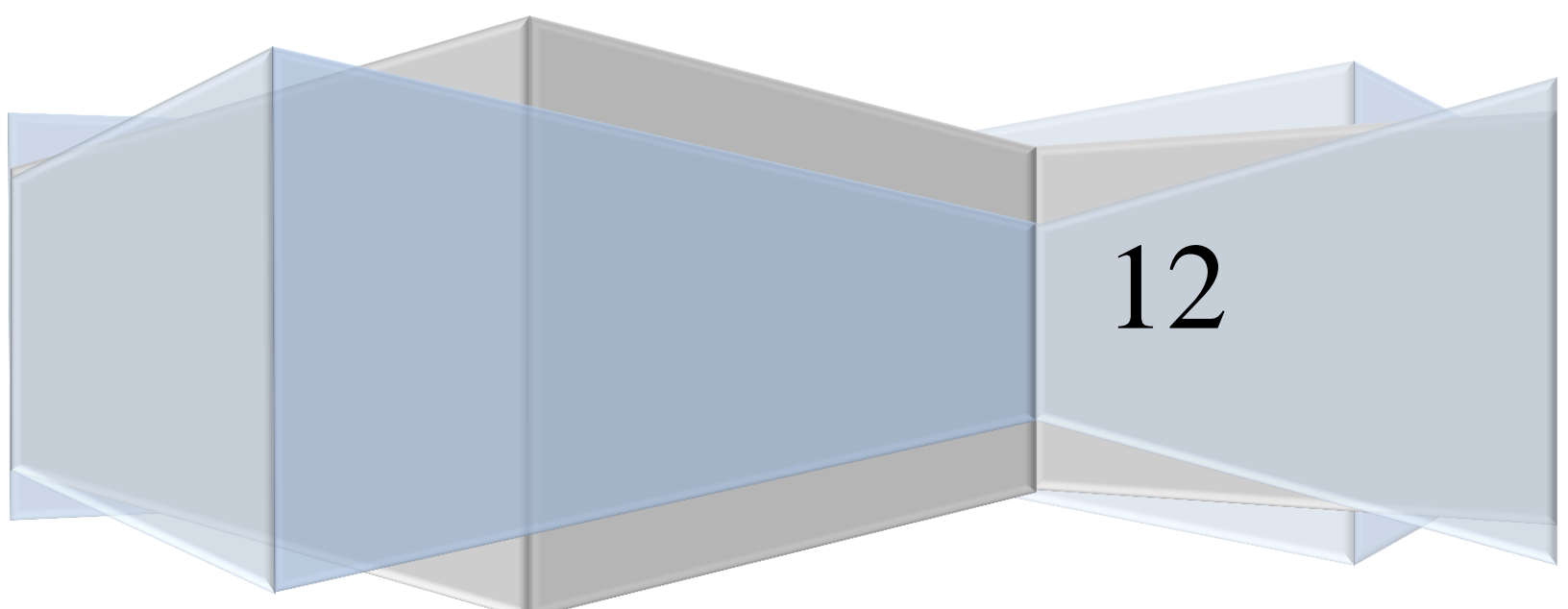


**(Statement of Work) for
Preventive Maintenance Service Contract
For Diesel Powered Electric Generators**

US Embassy Amman



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STATEMENT OF WORK FOR MAINTENANCE SERVICES

February 10th, 2014

Preventive Maintenance Service Contract for Diesel Powered Electric Generators

1. BACKGROUND AND PURPOSE

This statement of work (SOW) describes the technical requirements of a maintenance and repair contract for electricity power generators (4 no.), sizes and makes are different as per the below table which contains information on the technical data of these generators. The aforementioned equipment serves an intricate mechanical infrastructure currently installed within the U.S. Embassy Amman compound. The successful bidder will be required to perform routine scheduled preventative maintenance of the herein described equipment.

2. SECURITY REQUIREMENTS

The contractor shall submit his/her personnel who will need to enter compound for security clearances at the start of the contract. Those who are not granted access, the contractor should submit replacements.

3. GENERAL REQUIREMENTS

The contractor shall provide scheduled preventative maintenance (PM) as described in this document. The selected contractor will provide PM services between the hours of 8:00 A.M. and 4:30 P.M. for all equipment identified in this document. The contractor will make every effort to eliminate or vigorously reduce the emission of soot and/or unburned hydrocarbons to the atmosphere that results from the service and maintenance of generators equipment in order to protect the environment. The contractor will ensure that all field service technicians have the required relevant experience and training to handle their tasks successfully and professionally and should provide documents to the (COR) satisfaction and approval. The unscheduled call for service should be quoted for COR's approval and should cover spare parts only.

The Service Contractor will not use any method or substances, which may cause damage to the equipment's or systems. Any damage or loss through negligence by the Service Contractor, sub-contractor or Service Contractor's staff shall be the whole responsibility of the Service Contractor. The US embassy may require the Service Contractor to make good the damage or pay for the cost of rectification.

All process should use suitable methods, equipment or substances in accordance with manufacturer's recommendations. Contract value will be paid evenly at the end of each month after completion of the PM tasks that falls within that month and getting the signature from the (COR).

All bidders must have serviced and maintained similar systems of similar design using the same or similar equipment as describe herein. All technicians must be fully trained (with documentation) to service the brand of generators and related services as described in this document. The contractor shall follow the directions of the manufacturers but the directions of the (COR) will dominate.

The following table specifies generators fall under this contract:

| | |
|---|-------------------|
| Generator 1 year of installation: 1992 current total running hours: | |
| MARATHON ELECTRIC #1 | |
| Model | 741RSL2064AP-000W |
| Serial number | UN3529391-1 |
| Type | RSL |
| Frame | 741 |
| RPM | 1500 |
| Ph | 3 |
| Hz | 50 |
| Pf | 0.8 |
| KW | 720 |
| Volt | 220-380 |
| KVA | 900 |
| Amp. | 1367 |
| Regulator number | PM100 |
| Diesel Engine: CUMINS | |

| | |
|---|-------------------|
| Generator 2 year of installation: 1992 current total running hours: | |
| MARATHON ELECTRIC #2 | |
| Model | 741RSL2064AP-000W |
| Serial number | UN3529391-2 |
| Type | RSL |
| Frame | 741 |
| RPM | 1500 |
| Ph | 3 |
| Hz | 50 |
| Pf | 0.8 |
| KW | 720 |
| Volt | 220-380 |
| KVA | 900 |
| Amp. | 1367 |
| Regulator number | PM100 |
| Diesel Engine: CUMINS | |

| | |
|---|------------------|
| Generator 3 year of installation: 2009 current total running hours: 200 | |
| Make: CATERPILLAR | |
| Model | 400 |
| Serial number | CAT00000EC2G0982 |
| Year of manufacture | 2009 |
| RPM | 1500 |

| | |
|----------------------------|---------|
| Ph | 3 |
| Hz | 50 |
| Pf | 0.8 |
| KW | 292 |
| Volt | 220-380 |
| KVA | 365 |
| Amp. | 527 |
| Diesel Engine: Caterpillar | |

| | |
|---|-------------------|
| Generator 4 year of installation: 2009 current total running hours: | |
| Model | 350 – M090060 |
| Serial number | CAT00000PC2Y01700 |
| Type | CATERPILLAR |
| Frame | |
| RPM | 1500 |
| Ph | 3 |
| Hz | 50 |
| Pf | .8 |
| KW | 256 |
| Volt | 380/220 |
| KVA | 320 |
| Amp. | 460 |
| Diesel Engine: Caterpillar | |

4. SITE VISIT

The vendors should make themselves familiar with the size and conditions of this (SOW) during the site visit that will be arranged prior of submitting the offers. During the site visit, the vendors will have the freedom to check on the equipment that falls under this (SOW) and ask question to the technical staff about conditions and operations them. A procurement representative will be there also to answer questions related to the contractual side of this contract.

5. SCOPE OF WORK

5.1. Contract Services and Scheduled Maintenance

5.1.1. Routine Equipment Maintenance Activities and Inspection:

The contractor shall perform scheduled periodic Preventative Maintenance (PM) inspections on the equipment listed in this (SOW). The goal of these inspections is to maintain optimum equipment performance and reduce the likelihood of unexpected failures. Each inspection shall be performed in accordance with the attached inspection task details (Exhibit A) as a minimum. The Contractor agrees to perform inspections and maintenance of the equipment primarily during the business hours of 8:00 A.M. to 4:30 P.M. Sunday through Thursday.

The contractor will document all PM work completed on both their own internal documents as well as the original Work Order form for each PM assigned. Each PM must be pre-scheduled through the COR and performed with an embassy's Facilities Maintenance team member present. All completed original Work Order forms must flow back to said individual for verification of completeness. This includes task lists associated with the PM as well as the original Work Order form and the vendors service report. All work completed by the contractor shall abide by the Lock Out-Tag out protocol. COR reserves the right to remove all contract personnel not adhering to required regulations and quality of work and/or failing to meet the minimum requirements as outlined in the description of contractor capabilities.

If and to the extent that there is an inconsistency between this maintenance specification and any Manufacture's maintenance specification, the Manufacture's maintenance specification shall prevail.

5.2. Service Contractor Obligations

The Service Contractor shall:

- Provide adequately supervised employees as required by the Laws of the jurisdiction to carry out the Services;

- Execute, perform and provide the Services in every respect to the reasonable satisfaction of the US embassy COR and in conformity with all reasonable directions and requirements of the US embassy;
- Ensure appropriately qualified and experienced persons, who shall be properly supervised or directed by the Service Contractor;
- Make good any damage to the equipment or any part thereof caused by any act or omission of the Service Contractor ;
- Adhere to all rules and instructions within the US Embassy Compound (including any non-smoking policy, etc.);
- Immediately notify the COR in writing of all matters affecting its responsibility;
- Obtain the COR's approval for any Services to be undertaken outside the usual scheduled times for provision of the Services;
- Provide qualifications documents and job history of the Service Contractor's personnel if required by the COR;
- Provide evidence of training of all Service Contractor's personnel, if required by the COR;
- Ensure that any lost or unclaimed property found by the Contractor is passed to the COR at the first practicable opportunity;
- At the direction of the COR, remove from the embassy's compound any of the Service Contractor's personnel who misconduct themselves or are incompetent or negligent in performing their duties or who the US embassy considers are undesirable to perform the Services; and
- Provide to the COR, **within one week** of commencement of the Contract, a schedule specifying the nature and timing of all PM work to be completed.

5.3. Preventive Maintenance Schedule and requirements

This is a one year contract. The service contract will include the following (4) items to be performed annually:

- a) Monthly (12) operating inspections.
- b) Quarterly (4) operating inspections.
- c) Semiannually (2) operating inspections.
- d) Annually (1) operating inspections.

All maintenance to reference above must be followed in accordance with the operating and procedure manuals for all related equipment and as per manufacturer's guidance and instructions. Personnel performing any related works to this (SOW) should be proven highly qualified and capable of handling their tasks correctly and efficiently.

Each Routine Operating Inspection is to consist of the task-actions listed herein for each equipment type and to be performed at the frequency listed.

5.4. Further Requirements

5.4.1. Reporting:

The contractor shall at start of contract and within one week of the date specified in the Notice to Proceed letter, submit all annual, semi-annual, quarterly and monthly repairs checklists for the COR approval. All these shall comply with the manufacturer's requirements and shall cover all needed works. It is on the contractor's responsibility to survey and contact the manufacturer to make these checklists comprehensive and complete to eliminate breakdowns and make sure equipment are running at optimal performance. These reports/checklists should be filled completely and appropriately at the conclusion of each visit and submitted to the COR. The reports shall contain: findings, corrective actions taken, recommendations and operating conditions of the equipment. Contractor personnel should not leave site before addressing the reports to the COR and taking his/her signatures. These reports shall be kept on site and the contractor shall keep a copy. The contractor shall submit his/her recommendations for any repair requirements. Contractor shall submit the parts needed to be changed, if any, with cost of these parts. Manpower shall be compensated within this contract's monthly value.

5.4.2. Parts and Material Replacement:

Unless otherwise stated herein, consumables including adding limited quantities of oils and lubricants (not complete change) are to be included as necessary to perform any Routing Operating Inspection(s) indicated with no extra charge. There shall be one annual complete oil change by contractor with no charges and as directed by the COR.

Only original parts are to be used. If not available, contractor shall report that to the COR and take his/her approval.

All parts used in the performance of these maintenances shall be new. If parts can be rebuilt/remanufactured that meet OEM specifications, contractor should report that and take COR approval in advance.

5.4.3. Parts Warranty:

Contractor will guarantee all parts replaced or repaired by him/her for one year. If any of these parts defected the contractor shall replace it as per specified herein with no extra charge even if the contract period was expired.

5.4.4. Workmanship Warranty:

The contractor shall guarantee the quality of all workmanship of the Analysis Service that is performed under the scope of services for a period of sixty (60) days after completion. Upon written notification within such period, the contractor will agree to remedy and redo any service in a timely manner without cost to Embassy.

6. The U.S. GOVERNMENT shall not provide material for this project.

Contractor shall provide adequate quantities of materials to complete the project as specified.

7. Exclusions

The following is not contractor's responsibility, nevertheless, contractor should advise any malfunctions and/or recommendations after each visit. This agreement does not include the following items:

- 1- Replacement parts not outlined in this (SOW), material cost only.
- 2- Batteries replacement material cost.

8. Environmental, Health, and Safety

The contractor will be committed to conducting all operations in compliance with all environmental regulations and to providing a safe and healthful workplace. Contractor's environmental, health, and safety goals include preventing incidents that harm the environment, accidental injury to our employees and visitors, and/or exposure to harmful chemical or physical agents. Contractor's goals should also include the elimination of accidents that cause property loss, environmental damage, or result in the interruption to services.

In addition to relevant statutory requirements, Standards and other provisions of this Contract, the Service Contractor must:

- Ensure that the Service Contractor's personnel are conversant with and adhere to all relevant occupational health and safety legislation.
- Ensure that all electrical equipment, materials, extension cords, fittings and the like provided for the Services comply with the requirements of all

Relevant Authorities and have been tested and tagged by a competent person at least once every 2 years;

- Shall take all reasonable precautions against fire, production of smoke or the “off gassing” of any noxious substance;
- Shall ensure that the Service Contractor’s personnel comply with all safety procedures, and requirements which apply to the US embassy Compound;
- Shall ensure that the Service Contractor’s personnel are adequately trained and instructed in the safe and correct usage, handling and operation of materials/ equipment relevant to the Services and provide reasonable proof of such to the COR on request;
- Shall ensure the Service Contractor’s personnel are certified as having completed occupational health and safety training and have been issued with all the necessary Personal Protection Equipment; training program/s should be presented and must satisfy the COR.

EXHIBIT A

The below procedures are written to cover as much possible of needed actions to maintain these equipment in the best possible way. The manufacturer’s written procedures shall be reviewed by the contractor and applied in addition to the below with notifying the COR in advance for his review and approval. Contractor shall prepare and keep his checklists, reports, test results and documentation properly with original copy to be kept with the COR.

GENERATORS MAINTENANCE PROGRAM SPECIAL INSTRUCTIONS:

The following maintenance and operational checks will be made at each periodic PM visit in addition to the checkpoints described below:

1. Starting System
 - 1.1. Clean batteries and cables.
 - 1.2. Check and record specific gravity of lead-acid batteries.
 - 1.3. Check for proper starter operation noting any unusual noises.
 - 1.4. Check for proper cranking motor disconnect.
 - 1.5. Load test the battery set.
2. Battery Charging System
 - 2.1. Check battery charger for proper operation.
 - 2.2. Check battery charging alternator for proper output.
 - 2.3. Tighten all battery connections.
 - 2.4. Check electrolyte level and fill.
3. Fuel System
 - 3.1. Check engine and supply system for any fuel leaks.
 - 3.2. Check operation of day tank pump and float switch.
 - 3.3. Check electrical and piping connections to day tank.
 - 3.4. Check fuel pressure gauge for proper pressure.
 - 3.5. Drain condensation from the bottom of day tank.
4. Lube Oil System
 - 4.1. Check oil level.
 - 4.2. Check engine oil pressure.
 - 4.3. Check oil filter differential pressure.
 - 4.4. Take sample of lube oil for analysis (once per year). Provide report to COR.
5. Air Intake System
 - 5.1. Check clean air condition.
 - 5.2. Listen for any unusual noises from this area.
 - 5.3. Check air intake louvers for proper operation.
 - 5.4. Insure that air intake flow is not unduly restricted.
6. Exhaust system
 - 6.1. Inspect exhaust silencer, flexible connection and exhaust piping.
 - 6.2. Visually check exhaust outlet for excessive smoking.
 - 6.3. Visually check crankcase breather for excessive smoking.
 - 6.4. Check the exhaust temperature of each cylinder with infra-red gun
7. Cooling System
 - 7.1. Check coolant level.
 - 7.2. Check for proper amount of anti-freeze. Add as needed. Report findings.
 - 7.3. Check radiator core for obstruction or buildup of foreign material.
 - 7.4. Check general condition of engine coolant.
 - 7.5. Check all belts for wear and proper tension.
 - 7.6. Check all hoses for cracks and brittleness.
 - 7.7. Check jacket water heaters and thermostats for proper operation.
8. Speed Control System

- 8.1. Check governor rods and linkages for loose or worn parts.
- 8.2. Check governor operation under load.
- 8.3. Tighten loose wiring connections and note any potential problems.
- 8.4. Check governor oil.
9. Safety System
 - 9.1. Test over speed device.
 - 9.2. Test water temperature contactor.
 - 9.3. Test lube oil pressure contactor.
 - 9.4. Test over crank device.
 - 9.5. Check out all other safety devices, which may cause damage to the engine.
10. A.C. Power Generator
 - 10.1. Make a general inspection of all electrical connections on regulator and generator.
 - 10.2. Inspect generator brushes and slip rings.
 - 10.3. Grease bearings if necessary.
 - 10.4. Check and adjust voltage regulator.
 - 10.5. Vacuum dust from generator compartment.
11. Engine Control Panel
 - 11.1. Inspect all electrical connections and tighten where necessary.
 - 11.2. Inspect condition of relay contacts.
 - 11.3. Thoroughly clean control panel.
 - 11.4. Replace any indicator lights not working.
 - 11.5. Replace any blown fuses.
 - 11.6. Check operation of main circuit breaker and leave in "ready" position
12. General
 - 12.1. Carefully inspect engine for leaks or deterioration.
 - 12.2. Make note of any unusual sounds during walk-around inspection.
 - 12.3. Check and adjust voltage and frequency.
 - 12.4. During load test, record the reading of the following:
 - 12.4.1. lube and oil pressure
 - 12.4.2. water temperature
 - 12.4.3. frequency
 - 12.4.4. current (all three phases)
 - 12.4.5. voltage (all three phases)
 - 12.4.6. kilowatts
 - 12.5. Check engine and generator mounts.
13. Remove oil and debris from engine exterior with approved solvent.
14. Engine Service
 - 14.1. One complete engine service to include oil, oil filters, fuel filters and air filters (air filters when needed), waste oil removal and labor. Work to be performed once during contract year. Parts shall be original and to be submitted to COR for approval before installing them.
 - 14.2. Antifreeze will be billed separately as needed.

Technical Exhibit A

Preventive Maintenance Requirements

(Frequency: Monthly)

Checkpoints: as per below items, contractor shall conduct the required corrective actions:

1. Examine generator for moisture and dirt. Inform COR to arrange cleaning.
2. Check and record battery system specific gravity and voltage of the pilot cell of each battery.
3. Check level of electrolyte. Refill to proper level. Record amount of water used. Abnormal use of water indicates overcharging.
4. Equalize charge, if required.
5. Check governor oil level (add as required) and linkages and ball joints. Check for unusual oil leakage.
6. Check fan and alternator belts for condition and proper tension.
7. Record engine running time meter reading at start and end of test.
8. Simulate normal power failure from a "cold start" by use of the test switch in the automatic transfer switch or by opening normal power supply to the emergency power supply system (EPSS). Observe and record time delay on start.
9. Record cranking time (terminates when engine starts).
10. Transfer the load to the EPSS and operate the unit under full load for a minimum of 30 minutes. It is important that the unit be operated under load. If a portion of the building load cannot be connected, a resistance load should be used. The electrical load shall be not less than fifty percent of the total connected EPSS load (not less than thirty percent of the EPS nameplate rating and preferably at least fifty percent of the EPS nameplate rating). NOTE: If the generator set is used for standby power or for peak load shaving, these uses shall be recorded and may be substituted for scheduled operations and testing of the generator set if the appropriate data is also recorded.
11. Equivalent loads used for testing shall be automatically replaced with the emergency loads in case of failure of the primary source.
12. Record AC voltage, frequency, and amperage.
13. Record oil pressure, battery-charging rate, and water or air temperature after 15 minutes running time.
14. Verify that battery charger is operating properly.
15. While unit is operating, thoroughly observe operation for any indication of defects or possible malfunctions.
16. Check exhaust system and muffler for leaks.
17. Check for proper supervisory signals. When applicable, supervised temperature and oil pressure circuits shall be mechanically closed and checked for proper signals.
18. After unit has operated for 25 minutes, log the operation to show at least the following information: engine and generator speed in R.P.M., operating voltage, frequency, operating amperage, engine temperatures, engine oil pressure, hour meter readings.
19. Return test switch to normal or reestablish normal power supply at such time as will cause a minimum running time under load.
20. Record time delay on retransfer.
21. Record time delay on shutdown on units so equipped.
22. Verify that transfer switch normal position pilot light is illuminated and isolating switch is closed – standby (emergency) and system is set for automatic start and transfer.
23. Verify that all alarm pilot lights off.
24. After unit has been operated, check lubricant and coolant according to manufacturer's instructions.

25. Maintain engine log in Generator Room.
26. Clean generator room and remove all debris.

Technical Exhibit B
Preventive Maintenance Requirements
(Frequency: Quarterly)

Checkpoints: as per below items, contractor shall conduct the required corrective actions:

1. Clean the fuel strainer, filter, and dirt leg.
2. Clean the crankcase breather.
3. Check the exhaust system for proper clearance and that insulation is complete.
4. Check that battery terminals are clean and cable connections are tight.
5. Check that where wires are subject to movement that chafing has not occurred.

Technical Exhibit C
Preventive Maintenance Requirements
(Frequency: Semiannual)

Checkpoints: as per below items, contractor shall conduct the required corrective actions:

1. Test and record the coolant freeze protection and level. Add coolant as required for proper freeze protection.
2. Check the flexible exhaust section for leaks.
3. Verify that all engine-operating alarms and safety shutdown devices function properly. (Generator not under load during this check)
4. Check that electrical boxes, panels, and cabinets are properly enclosed and not damaged.
5. Service the air cleaner. Replace as required. Air cleaner to be billed separately if approved by COR.
6. Check generator brush appearance and length; verify that brushes are free to move in their holders; check brush spring tension or contact pressure, should approximate 2½ psi.
7. Check and record specific gravity and voltage of each individual cell. Uneven cell specific gravities and voltages indicate trouble or approaching failure. If trouble is due to undercharging, an equalizing charge will restore all cells to normal.
8. Verify that battery cap vents are open.
9. With the battery charger disconnected, conduct a voltage test by measuring and recording the voltage of the battery during the generator starting cycle. An artificial load equal to the full load of the starter to the battery may be used for this test. The battery voltage shall not fall below 2.05 volts per cell while under load.
10. Replace the battery when it no longer carries the proper charge and load capacity. This item will be billed separately if approved by COR with no charge.

Technical Exhibit D
Preventive Maintenance Requirements
(Frequency: Annual)

Checkpoints: as per below items, contractor shall conduct the required corrective actions:

1. Supply and change all fuel and oil filters and belts in this contract.
2. Inspect and adjust rack on unit injector or fuel distributor pump according to manufacturer's instructions. Check injector pump and injectors and verify flow rate, pressure and spray pattern.

3. Adjust governor for proper operating speed.
4. Flush cooling system and check hoses. Replace hoses if required by COR. The hoses will be replaced by contractor in this contract. Replace coolant.
5. Review the Material Safety Data Sheet (MSDS) and dispose of the coolant at an authorized recovery facility.
6. Brush and clean the coolant heat exchanger, in and out.
7. Tighten control and power wiring connections.
8. Check the calibration of voltage-sensing relays/devices.
9. Change governor oil. Review the Material Safety Data Sheet (MSDS) for proper disposal of used oil.
10. If appropriate, recycle oil at an authorized station.
11. Inspect and clean generator rotor, stator, and exciter.
12. Clean commutator and collector rings. Check brush wear and tension, in accordance with manufacturer's instructions.
13. Clean voltage regulator.
14. Measure and record resistance reading of generator windings with insulation tester (Megger). Note:
15. First separate brushes from commutator to avoid damage to control circuits.
16. Check generator bearings and bearing grease. Lubricate in accordance with manufacturer's instructions.
17. Exercise the Emergency Power Supply System (EPSS) circuit breakers, including main and feed breakers between the Emergency Power Supply (EPS) and the transfer switch load terminals.
18. Visually check bus bars, bracing, and feeder connections for cleanliness and signs of overheating.
19. Perform other work prescribed by the manufacturer.
20. Clean generator room and remove all debris.